Epitomes

Important Advances in Clinical Medicine

Emergency Medicine

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The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in emergency medicine. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and clinical importance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of progress in medicine, whether in their own field of special interest or another.

The epitomes included here were selected by the Advisory Panel to the Section on Emergency Medicine of the California Medical Association, and the summaries were prepared under the direction of Scott Votey, MD, and the panel.

Pediatric Fever Guidelines

AT LEAST TWO THIRDS OF children visit a physician for an acute febrile illness before they are 3 years old. Respiratory, gastrointestinal, and urinary tract infections are most common in this age group. Occult bacteremia may occur in conjunction with any of these infections and most often occurs in children with fever without a known source and in those with otitis media. By definition, occult bacteremia is not characterized by any specific subjective or objective findings and is more frequent in children with higher temperatures. Since the introduction of the haemophilus b polysaccharide vaccine, the most frequent etiologic bacteria are *Streptococcus pneumoniae* and *Neisseria meningitidis*, accounting for about 90% and 4%, respectively, of the species identified in blood cultures. If a child with bacteremia is not given antimicrobial therapy, the overall risk of persistent fever is 42%, of persistent bacteremia 19%, and of meningitis 10%. The risk of meningitis occurring in children with *S pneumoniae* bacteremia managed as outpatients without antibiotic therapy is about 5%.

Occult urinary tract infections occur in about 7% of male infants younger than 6 months and 8% of female infants younger than 1 year with fever without a source. Only 80% of these infants will have greater than 5 leukocytes per high-power field in the urine sediment or a urine dipstick test positive for leukocyte esterase or nitrite. A Gram's stain of urine sediment will reveal bacteria in 99% of these infants. When occult urinary tract infections may be present, urine cultures should be done for all male infants younger than 6 months and all female infants younger than 1 year with fever without a source before antibiotics are empirically prescribed.

The relative risk of occult bacteremia is five times higher in children with a leukocyte count of 15×10^9 per liter or higher (≥15,000 per mm^3) (13% versus 2.6%). Therefore, the leukocyte count may be used to determine which children 3 to 36 months of age with a fever without a source should have a blood culture and antibiotic treatment. The use of the leukocyte count as a screening test will reduce by two thirds the number of patients in whom cultures are done and who are treated, but will result in 25% of children whose bacteremia goes undetected and untreated.

Blood cultures are recommended in children between 3 and 36 months of age with fever without a source (temperature, ≥39.0°C) if the leukocyte count is 15×10^9 per liter or higher. Blood cultures are not necessary when the presumptive diagnosis of a viral syndrome is supported by a benign clinical appearance and the presence of other family members or frequent contacts with an obvious viral syndrome.

The use of parenteral antibiotic therapy is a cost-effective approach to the management of children at risk of occult bacteremia. When the results of the blood or urine culture are reported as presumptively positive, the child should be reexamined. Children who are still febrile or who appear ill should have another blood culture and be admitted to a hospital for parenteral antibiotic therapy pending the results of these cultures. Children who are afebrile and appear well may be treated with the intravenous administration of an appropriate antibiotic or a ten-day course of oral antibiotics (or both).

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REFERENCES

Baraff LJ, Bass JW, Fleisher GR, et al: Practice guideline for the management of infants and children 0 to 36 months of age with fever without source—Agency for Health Care Policy and Research. Ann Emerg Med 1993; 22:1198-1210 [erratum published in Ann Emerg Med 1993; 22:1450]

Baraff LJ, Oslund S, Prather M: Effect of antibiotic therapy and etiologic microorganism on the risk of bacterial meningitis in children with occult bacteremia. Pediatrics 1993; 92:140-143

Lohr JA, Portilla MG, Geuder TG, Dunn ML, Dudley SM: Making a presumptive diagnosis of urinary tract infection by using a urinalysis performed in an on-site laboratory. J Pediatr 1993; 122:22-25